ALPHA VAC

阿尔法真空

# Suction Cups & Pads

The heart of any vacuum system is the cup that touches the part. Alpha Vac suction cups and gripsters cover every common pick: flat panels, curved bodywork, oily press blanks, bagged goods and delicate electronics. Every gripster shape is moulded in a choice of seven elastomers, so the same gripper can run a food line, a press shop or a clean room.

**3,307 order codes · 12 families**

INDUSTRIAL VACUUM GRIPPERS AND GRIPSTERS

# Suction Cups & Pads

## PLANO

Flat cup for flat, rigid, dry surfaces

## GRIDLINE

Cleated flat cup, resists deformation under load, vents trapped oil

## STRIDE

1.5-fold bellows, modest height compensation, fast cycle

## VAULT

2.5-fold bellows, general purpose stroke for carton and bag handling

## REACH

3.5-fold bellows, maximum stroke for stepped and uneven picks

## BASIN

Deep round cup for strongly curved and cylindrical parts

## SPAN

Oval flat cup, maximum area on narrow profiles

## SPANFLEX

Oval bellows, narrow footprint with height compensation

## WISP

Micro precision cup for electronics and thin film

## EMBER

High-temperature flat cup for hot glass and formed sheet

## MESA

Rectangular flat pad, maximum sealed area on flat panels

## PLUME

Soft multi-fold bellows, gentle grip on bags, film and pouches

# PLANO PLN

## FLAT CUP FOR FLAT, RIGID, DRY SURFACES

The flat, low profile workhorse of the range. When the surface is flat, rigid and dry, the PLANO gripster gives the largest sealed area for its diameter and the fastest cycle, the default gripper for sheet metal, glass and board.

**APPLICATIONS**

flat sheet metal, glass panels, rigid board, flat packaging

| 0 to 451 | 4 to 150 | -50 to 200 | 50 to 60 | 6 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Graphite ESD

Bone

Amber

Deep Teal

Slate

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |
| EPDM | Slate | 60 Shore A | -40 to 130 °C<br>-40 to 266 °F | 1.15 g/cm³ | No | No | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **4 mm / 0.157 in** | 0.9 mm / 0.035 in | 0 mm / 0.0 in | 0.0 ml / 0.0 in³ | **0 N / 0 lbf** |
| **6 mm / 0.236 in** | 1.3 mm / 0.051 in | 0 mm / 0.0 in | 0.01 ml / 0.001 in³ | **1 N / 0 lbf** |
| **8 mm / 0.315 in** | 1.8 mm / 0.071 in | 0 mm / 0.0 in | 0.01 ml / 0.001 in³ | **1 N / 0 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **10 mm / 0.394 in** | 2.2 mm / 0.087 in | 0 mm / 0.0 in | 0.03 ml / 0.002 in³ | **2 N / 0 lbf** |
| **15 mm / 0.591 in** | 3.3 mm / 0.13 in | 0 mm / 0.0 in | 0.09 ml / 0.005 in³ | **4 N / 1 lbf** |
| **20 mm / 0.787 in** | 4.4 mm / 0.173 in | 0 mm / 0.0 in | 0.21 ml / 0.013 in³ | **8 N / 2 lbf** |
| **25 mm / 0.984 in** | 5.5 mm / 0.217 in | 0 mm / 0.0 in | 0.4 ml / 0.024 in³ | **12 N / 3 lbf** |
| **30 mm / 1.181 in** | 6.6 mm / 0.26 in | 0 mm / 0.0 in | 0.7 ml / 0.043 in³ | **18 N / 4 lbf** |
| **40 mm / 1.575 in** | 8.8 mm / 0.346 in | 0 mm / 0.0 in | 1.66 ml / 0.101 in³ | **32 N / 7 lbf** |
| **50 mm / 1.969 in** | 11.0 mm / 0.433 in | 0 mm / 0.0 in | 3.24 ml / 0.198 in³ | **50 N / 11 lbf** |
| **60 mm / 2.362 in** | 13.2 mm / 0.52 in | 0 mm / 0.0 in | 5.6 ml / 0.342 in³ | **72 N / 16 lbf** |
| **75 mm / 2.953 in** | 16.5 mm / 0.65 in | 0 mm / 0.0 in | 10.93 ml / 0.667 in³ | **113 N / 25 lbf** |
| **88 mm / 3.465 in** | 19.4 mm / 0.764 in | 0 mm / 0.0 in | 17.7 ml / 1.08 in³ | **155 N / 35 lbf** |
| **110 mm / 4.331 in** | 24.2 mm / 0.953 in | 0 mm / 0.0 in | 34.5 ml / 2.105 in³ | **242 N / 54 lbf** |
| **150 mm / 5.906 in** | 33.0 mm / 1.299 in | 0 mm / 0.0 in | 87.47 ml / 5.338 in³ | **451 N / 101 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/2 (BSPP) male, G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-PLN-[size]-[compound]-[connection], for example AV-PLN-30-EPDM-G14. 642 configurations in total.

# GRIDLINE GRD

## CLEATED FLAT CUP, RESISTS DEFORMATION UNDER LOAD, VENTS TRAPPED OIL

A cleated flat gripster. Raised support ribs stop the cup collapsing under load and vent trapped oil, so this gripper keeps its grip on oily press blanks and heavy panels where a plain flat cup would slide.

**APPLICATIONS**

oiled sheet metal, press lines, heavy panels, shear-loaded lifts

| 8 to 424 | 20 to 150 | -40 to 150 | 55 to 60 | 5 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite | Graphite ESD | Amber | Deep Teal | Slate

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |
| EPDM | Slate | 60 Shore A | -40 to 130 °C<br>-40 to 266 °F | 1.15 g/cm³ | No | No | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **20 mm / 0.787 in** | 4.4 mm / 0.173 in | 0 mm / 0.0 in | 0.21 ml / 0.013 in³ | **8 N / 2 lbf** |
| **25 mm / 0.984 in** | 5.5 mm / 0.217 in | 0 mm / 0.0 in | 0.4 ml / 0.024 in³ | **12 N / 3 lbf** |
| **30 mm / 1.181 in** | 6.6 mm / 0.26 in | 0 mm / 0.0 in | 0.7 ml / 0.043 in³ | **17 N / 4 lbf** |
| **40 mm / 1.575 in** | 8.8 mm / 0.346 in | 0 mm / 0.0 in | 1.66 ml / 0.101 in³ | **30 N / 7 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **50 mm / 1.969 in** | 11.0 mm / 0.433 in | 0 mm / 0.0 in | 3.24 ml / 0.198 in³ | **47 N / 11 lbf** |
| **60 mm / 2.362 in** | 13.2 mm / 0.52 in | 0 mm / 0.0 in | 5.6 ml / 0.342 in³ | **68 N / 15 lbf** |
| **75 mm / 2.953 in** | 16.5 mm / 0.65 in | 0 mm / 0.0 in | 10.93 ml / 0.667 in³ | **106 N / 24 lbf** |
| **88 mm / 3.465 in** | 19.4 mm / 0.764 in | 0 mm / 0.0 in | 17.7 ml / 1.08 in³ | **146 N / 33 lbf** |
| **110 mm / 4.331 in** | 24.2 mm / 0.953 in | 0 mm / 0.0 in | 34.5 ml / 2.105 in³ | **228 N / 51 lbf** |
| **150 mm / 5.906 in** | 33.0 mm / 1.299 in | 0 mm / 0.0 in | 87.47 ml / 5.338 in³ | **424 N / 95 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/2 (BSPP) male, G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-GRD-[size]-[compound]-[connection], for example AV-GRD-60-EPDM-G14. 450 configurations in total.

# STRIDE STR

## 1.5-FOLD BELLOWS, MODEST HEIGHT COMPENSATION, FAST CYCLE

A short one and a half fold bellows gripster. The single fold soaks up small height differences and reaches a slightly angled face while still cycling fast, a versatile everyday gripper.

**APPLICATIONS**

light cartons, slightly uneven parts, high-speed pick and place

| 2 to 99 | 10 to 75 | -50 to 200 | 50 to 60 | 5 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Graphite ESD

Bone

Amber

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **10 mm / 0.394 in** | 8.5 mm / 0.335 in | 6 mm / 0.236 in | 0.2 ml / 0.012 in³ | **2 N / 0 lbf** |
| **15 mm / 0.591 in** | 12.8 mm / 0.504 in | 6 mm / 0.236 in | 0.68 ml / 0.041 in³ | **4 N / 1 lbf** |
| **20 mm / 0.787 in** | 17.0 mm / 0.669 in | 6 mm / 0.236 in | 1.6 ml / 0.098 in³ | **7 N / 2 lbf** |
| **25 mm / 0.984 in** | 21.2 mm / 0.835 in | 6 mm / 0.236 in | 3.12 ml / 0.19 in³ | **11 N / 2 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **30 mm / 1.181 in** | 25.5 mm / 1.004 in | 6 mm / 0.236 in | 5.41 ml / 0.33 in³ | **16 N / 4 lbf** |
| **40 mm / 1.575 in** | 34.0 mm / 1.339 in | 6 mm / 0.236 in | 12.82 ml / 0.782 in³ | **28 N / 6 lbf** |
| **50 mm / 1.969 in** | 42.5 mm / 1.673 in | 6 mm / 0.236 in | 25.03 ml / 1.527 in³ | **44 N / 10 lbf** |
| **60 mm / 2.362 in** | 51.0 mm / 2.008 in | 6 mm / 0.236 in | 43.26 ml / 2.64 in³ | **64 N / 14 lbf** |
| **75 mm / 2.953 in** | 63.8 mm / 2.512 in | 6 mm / 0.236 in | 84.56 ml / 5.16 in³ | **99 N / 22 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-STR-[size]-[compound]-[connection], for example AV-STR-30-HNBR-G14. 340 configurations in total.

# VAULT VLT

## 2.5-FOLD BELLOWS, GENERAL PURPOSE STROKE FOR CARTON AND BAG HANDLING

The general purpose bellows gripster. Two and a half folds give real stroke for cartons, sacks and uneven tops, so one VAULT gripster covers most depalletising picks.

**APPLICATIONS**

corrugated cartons, sacks and bags, depalletising, uneven tops

| 4 to 128 | 15 to 88 | -50 to 200 | 50 to 60 | 5 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Graphite ESD

Bone

Amber

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **15 mm / 0.591 in** | 19.1 mm / 0.752 in | 14 mm / 0.551 in | 1.01 ml / 0.062 in³ | **4 N / 1 lbf** |
| **20 mm / 0.787 in** | 25.4 mm / 1.0 in | 14 mm / 0.551 in | 2.39 ml / 0.146 in³ | **7 N / 2 lbf** |
| **25 mm / 0.984 in** | 31.8 mm / 1.252 in | 14 mm / 0.551 in | 4.68 ml / 0.286 in³ | **10 N / 2 lbf** |
| **30 mm / 1.181 in** | 38.1 mm / 1.5 in | 14 mm / 0.551 in | 8.08 ml / 0.493 in³ | **15 N / 3 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **40 mm / 1.575 in** | 50.8 mm / 2.0 in | 14 mm / 0.551 in | 19.15 ml / 1.169 in³ | **26 N / 6 lbf** |
| **50 mm / 1.969 in** | 63.5 mm / 2.5 in | 14 mm / 0.551 in | 37.4 ml / 2.282 in³ | **41 N / 9 lbf** |
| **60 mm / 2.362 in** | 76.2 mm / 3.0 in | 14 mm / 0.551 in | 64.64 ml / 3.945 in³ | **59 N / 13 lbf** |
| **75 mm / 2.953 in** | 95.2 mm / 3.748 in | 14 mm / 0.551 in | 126.17 ml / 7.699 in³ | **93 N / 21 lbf** |
| **88 mm / 3.465 in** | 111.8 mm / 4.402 in | 14 mm / 0.551 in | 203.99 ml / 12.448 in³ | **128 N / 29 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/2 (BSPP) male, G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-VLT-[size]-[compound]-[connection], for example AV-VLT-40-HNBR-G14. 375 configurations in total.

# REACH RCH

## 3.5-FOLD BELLOWS, MAXIMUM STROKE FOR STEPPED AND UNEVEN PICKS

The long stroke gripster. Three and a half folds reach deep into stepped and uneven stacks, letting a single gripper touch down on parts at very different heights.

**APPLICATIONS**

stepped surfaces, mixed-height layers, shrink-wrapped bundles

| 6 to 185 | 20 to 110 | -50 to 200 | 50 to 60 | 4 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Bone

Amber

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **20 mm / 0.787 in** | 33.8 mm / 1.331 in | 24 mm / 0.945 in | 3.19 ml / 0.195 in³ | **6 N / 1 lbf** |
| **30 mm / 1.181 in** | 50.7 mm / 1.996 in | 24 mm / 0.945 in | 10.75 ml / 0.656 in³ | **14 N / 3 lbf** |
| **40 mm / 1.575 in** | 67.6 mm / 2.661 in | 24 mm / 0.945 in | 25.48 ml / 1.555 in³ | **24 N / 6 lbf** |
| **50 mm / 1.969 in** | 84.5 mm / 3.327 in | 24 mm / 0.945 in | 49.77 ml / 3.037 in³ | **38 N / 9 lbf** |
| **60 mm / 2.362 in** | 101.4 mm / 3.992 in | 24 mm / 0.945 in | 86.01 ml / 5.249 in³ | **55 N / 12 lbf** |
| **75 mm / 2.953 in** | 126.8 mm / 4.992 in | 24 mm / 0.945 in | 168.06 ml / 10.256 in³ | **86 N / 19 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **88 mm / 3.465 in** | 148.7 mm / 5.854 in | 24 mm / 0.945 in | 271.32 ml / 16.557 in³ | **119 N / 27 lbf** |
| **110 mm / 4.331 in** | 185.9 mm / 7.319 in | 24 mm / 0.945 in | 530.0 ml / 32.343 in³ | **185 N / 42 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2.  **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/2 (BSPP) male, G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-RCH-[size]-[compound]-[connection], for example AV-RCH-60-HNBR-G14. 292 configurations in total.

# BASIN BSN

## DEEP ROUND CUP FOR STRONGLY CURVED AND CYLINDRICAL PARTS

A deep, thimble shaped gripster for round work. Tall walls wrap bottles, cans and pipes, so the gripster seals on a strong curve where a flat cup cannot.

**APPLICATIONS**

bottles, cans, pipes, curved automotive trim

| 2 to 26 | 10 to 40 | -50 to 200 | 50 to 60 | 4 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Bone

Amber

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **10 mm / 0.394 in** | 9.0 mm / 0.354 in | 0 mm / 0.0 in | 0.39 ml / 0.024 in³ | **2 N / 0 lbf** |
| **15 mm / 0.591 in** | 13.5 mm / 0.531 in | 0 mm / 0.0 in | 1.31 ml / 0.08 in³ | **4 N / 1 lbf** |
| **20 mm / 0.787 in** | 18.0 mm / 0.709 in | 0 mm / 0.0 in | 3.11 ml / 0.19 in³ | **7 N / 2 lbf** |
| **25 mm / 0.984 in** | 22.5 mm / 0.886 in | 0 mm / 0.0 in | 6.07 ml / 0.37 in³ | **10 N / 2 lbf** |
| **30 mm / 1.181 in** | 27.0 mm / 1.063 in | 0 mm / 0.0 in | 10.5 ml / 0.641 in³ | **15 N / 3 lbf** |
| **40 mm / 1.575 in** | 36.0 mm / 1.417 in | 0 mm / 0.0 in | 24.88 ml / 1.518 in³ | **26 N / 6 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-BSN-[size]-[compound]-[connection], for example AV-BSN-25-HNBR-G14. 160 configurations in total.

# SPAN SPN

## OVAL FLAT CUP, MAXIMUM AREA ON NARROW PROFILES

An oval flat gripster for narrow work. The racetrack shape lays maximum sealed area along timber strips, extrusions and rails, a gripper built for long thin parts.

**APPLICATIONS**

timber strips, extrusions, narrow rails, edge banding

| 4 to 144 | 10 to 60 | -40 to 150 | 55 to 60 | 5 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Graphite ESD

Amber

Deep Teal

Slate

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |
| EPDM | Slate | 60 Shore A | -40 to 130 °C<br>-40 to 266 °F | 1.15 g/cm³ | No | No | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **10×20 mm / 0.394×0.787 in** | 2.2 mm / 0.087 in | 0 mm / 0.0 in | 0.05 ml / 0.003 in³ | **4 N / 1 lbf** |
| **15×30 mm / 0.591×1.181 in** | 3.3 mm / 0.13 in | 0 mm / 0.0 in | 0.17 ml / 0.01 in³ | **9 N / 2 lbf** |
| **20×40 mm / 0.787×1.575 in** | 4.4 mm / 0.173 in | 0 mm / 0.0 in | 0.41 ml / 0.025 in³ | **16 N / 4 lbf** |
| **25×50 mm / 0.984×1.969 in** | 5.5 mm / 0.217 in | 0 mm / 0.0 in | 0.81 ml / 0.049 in³ | **25 N / 6 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **30×60 mm / 1.181×2.362 in** | 6.6 mm / 0.26 in | 0 mm / 0.0 in | 1.4 ml / 0.085 in³ | **36 N / 8 lbf** |
| **40×80 mm / 1.575×3.15 in** | 8.8 mm / 0.346 in | 0 mm / 0.0 in | 3.32 ml / 0.203 in³ | **64 N / 14 lbf** |
| **50×100 mm / 1.969×3.937 in** | 11.0 mm / 0.433 in | 0 mm / 0.0 in | 6.48 ml / 0.395 in³ | **100 N / 22 lbf** |
| **60×120 mm / 2.362×4.724 in** | 13.2 mm / 0.52 in | 0 mm / 0.0 in | 11.2 ml / 0.683 in³ | **144 N / 32 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-SPN-[size]-[compound]-[connection], for example AV-SPN-30x60-EPDM-G14. 295 configurations in total.

# SPANFLEX SPF

## OVAL BELLOWS, NARROW FOOTPRINT WITH HEIGHT COMPENSATION

The oval bellows gripster. It keeps the narrow footprint of SPAN and adds a fold of height compensation for uneven profiles and narrow cartons.

**APPLICATIONS**

narrow cartons, uneven timber, profile handling

| 8 to 54 | 15 to 40 | -50 to 200 | 50 to 60 | 4 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Bone

Amber

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **15×30 mm / 0.591×1.181 in** | 12.8 mm / 0.504 in | 8 mm / 0.315 in | 1.36 ml / 0.083 in³ | **8 N / 2 lbf** |
| **20×40 mm / 0.787×1.575 in** | 17.0 mm / 0.669 in | 8 mm / 0.315 in | 3.2 ml / 0.195 in³ | **14 N / 3 lbf** |
| **25×50 mm / 0.984×1.969 in** | 21.2 mm / 0.835 in | 8 mm / 0.315 in | 6.24 ml / 0.381 in³ | **21 N / 5 lbf** |
| **30×60 mm / 1.181×2.362 in** | 25.5 mm / 1.004 in | 8 mm / 0.315 in | 10.81 ml / 0.66 in³ | **30 N / 7 lbf** |
| **40×80 mm / 1.575×3.15 in** | 34.0 mm / 1.339 in | 8 mm / 0.315 in | 25.64 ml / 1.565 in³ | **54 N / 12 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-SPF-[size]-[compound]-[connection], for example AV-SPF-25x50-HNBR-G14. 148 configurations in total.

# WISP WSP

## MICRO PRECISION CUP FOR ELECTRONICS AND THIN FILM

The micro precision gripster. A tiny tip on a slender stem picks SMD parts, wafers, lenses and labels where every gram and every millimetre of clearance counts.

**APPLICATIONS**

SMD components, wafers, lens blanks, thin film, labels

| 0 to 1 | 1 to 8 | -50 to 200 | 50 to 55 | 3 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite ESD

Bone

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | Yes | No | Yes |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | Yes | No | Yes | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | Yes | Yes | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **1 mm / 0.039 in** | 1.5 mm / 0.059 in | 0 mm / 0.0 in | 0.0 ml / 0.0 in³ | **0 N / 0 lbf** |
| **2 mm / 0.079 in** | 1.5 mm / 0.059 in | 0 mm / 0.0 in | 0.0 ml / 0.0 in³ | **0 N / 0 lbf** |
| **3 mm / 0.118 in** | 1.5 mm / 0.059 in | 0 mm / 0.0 in | 0.0 ml / 0.0 in³ | **0 N / 0 lbf** |
| **4 mm / 0.157 in** | 2.0 mm / 0.079 in | 0 mm / 0.0 in | 0.0 ml / 0.0 in³ | **0 N / 0 lbf** |
| **5 mm / 0.197 in** | 2.5 mm / 0.098 in | 0 mm / 0.0 in | 0.01 ml / 0.001 in³ | **0 N / 0 lbf** |
| **6 mm / 0.236 in** | 3.0 mm / 0.118 in | 0 mm / 0.0 in | 0.01 ml / 0.001 in³ | **1 N / 0 lbf** |
| **8 mm / 0.315 in** | 4.0 mm / 0.157 in | 0 mm / 0.0 in | 0.03 ml / 0.002 in³ | **1 N / 0 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Cup only, no fitting (for custom holders), M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-WSP-[size]-[compound]-[connection], for example AV-WSP-4-HNBR-G14. 54 configurations in total.

# EMBER EMB

## HIGH-TEMPERATURE FLAT CUP FOR HOT GLASS AND FORMED SHEET

The high temperature gripster. A heat resistant compound and a shielded fitting let this gripper handle hot glass, hot formed sheet and heated tooling that would destroy a standard cup.

**APPLICATIONS**

hot glass, hot-formed sheet, heated tooling, annealing lines

| 8 to 106 | 20 to 75 | -50 to 260 | 60 | 1 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Ember Red

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| High-Temp Silicone | Ember Red | 60 Shore A | -50 to 260 °C<br>-58 to 500 °F | 1.25 g/cm³ | Yes | No | Yes | No |

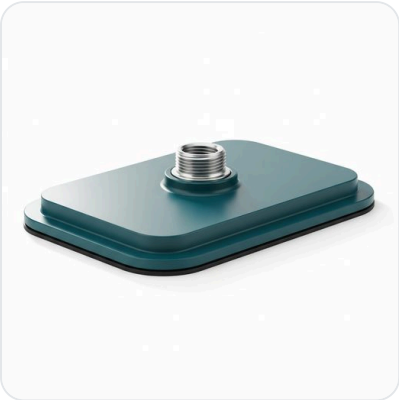
## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **20 mm / 0.787 in** | 4.4 mm / 0.173 in | 0 mm / 0.0 in | 0.21 ml / 0.013 in³ | **8 N / 2 lbf** |
| **30 mm / 1.181 in** | 6.6 mm / 0.26 in | 0 mm / 0.0 in | 0.7 ml / 0.043 in³ | **17 N / 4 lbf** |
| **40 mm / 1.575 in** | 8.8 mm / 0.346 in | 0 mm / 0.0 in | 1.66 ml / 0.101 in³ | **30 N / 7 lbf** |
| **50 mm / 1.969 in** | 11.0 mm / 0.433 in | 0 mm / 0.0 in | 3.24 ml / 0.198 in³ | **47 N / 11 lbf** |
| **60 mm / 2.362 in** | 13.2 mm / 0.52 in | 0 mm / 0.0 in | 5.6 ml / 0.342 in³ | **68 N / 15 lbf** |
| **75 mm / 2.953 in** | 16.5 mm / 0.65 in | 0 mm / 0.0 in | 10.93 ml / 0.667 in³ | **106 N / 24 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-EMB-[size]-[compound]-[connection], for example AV-EMB-50-VMQF-G14. 53 configurations in total.

# MESA MSA

## RECTANGULAR FLAT PAD, MAXIMUM SEALED AREA ON FLAT PANELS

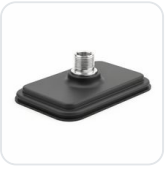


A rectangular flat gripster. Straight edges tile neatly across large flat panels, glass and solar modules, giving even more sealed area than a round gripper of the same span.

**APPLICATIONS**

large flat panels, glass sheet, solar modules, flat furniture board

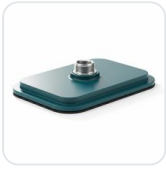
| 12 to 309 | 30 to 160 | -40 to 150 | 55 to 60 | 5 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |



Graphite

Graphite ESD

Amber



Deep Teal

Slate

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Nitrile Antistatic | Graphite ESD | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | **Yes** |
| Polyurethane | Amber | 60 Shore A | -20 to 60 °C<br>-4 to 140 °F | 1.2 g/cm³ | **Yes** | **Yes** | No | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |
| EPDM | Slate | 60 Shore A | -40 to 130 °C<br>-40 to 266 °F | 1.15 g/cm³ | No | No | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **30×20 mm / 1.181×0.787 in** | 6.6 mm / 0.26 in | 0 mm / 0.0 in | 0.47 ml / 0.029 in³ | **12 N / 3 lbf** |
| **40×25 mm / 1.575×0.984 in** | 8.8 mm / 0.346 in | 0 mm / 0.0 in | 1.04 ml / 0.063 in³ | **19 N / 4 lbf** |
| **60×40 mm / 2.362×1.575 in** | 13.2 mm / 0.52 in | 0 mm / 0.0 in | 3.73 ml / 0.228 in³ | **46 N / 10 lbf** |
| **80×50 mm / 3.15×1.969 in** | 17.6 mm / 0.693 in | 0 mm / 0.0 in | 8.29 ml / 0.506 in³ | **77 N / 17 lbf** |

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **100×60 mm / 3.937×2.362 in** | 22.0 mm / 0.866 in | 0 mm / 0.0 in | 15.55 ml / 0.949 in³ | **116 N / 26 lbf** |
| **120×80 mm / 4.724×3.15 in** | 26.4 mm / 1.039 in | 0 mm / 0.0 in | 29.86 ml / 1.822 in³ | **186 N / 42 lbf** |
| **160×100 mm / 6.299×3.937 in** | 35.2 mm / 1.386 in | 0 mm / 0.0 in | 66.35 ml / 4.049 in³ | **309 N / 70 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/2 (BSPP) male, G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-MSA-[size]-[compound]-[connection], for example AV-MSA-80x50-EPDM-G14. 330 configurations in total.

# PLUME PLM

## SOFT MULTI-FOLD BELLOWS, GENTLE GRIP ON BAGS, FILM AND POUCHES

The soft, gentle gripster. A tall stack of slim folds lets this gripper draw down onto bags, film and pouches without crushing or marking the pack.

**APPLICATIONS**

poly bags, shrink film, pouches, soft flexible packs

| 3 to 51 | 15 to 60 | -50 to 200 | 50 to 55 | 3 |
|---|---|---|---|---|
| HOLDING FORCE, N | CUP SIZE, MM | TEMPERATURE, °C | HARDNESS, SHORE A | COMPOUNDS |

Graphite

Bone

Deep Teal

## Material options

| Compound | Colour | Hardness | Temperature | Density | Non mark | Oil | FDA | ESD |
|---|---|---|---|---|---|---|---|---|
| Nitrile | Graphite | 55 Shore A | -30 to 105 °C<br>-22 to 221 °F | 1.25 g/cm³ | No | **Yes** | No | No |
| Silicone | Bone | 50 Shore A | -50 to 200 °C<br>-58 to 392 °F | 1.15 g/cm³ | **Yes** | No | **Yes** | No |
| Hydrogenated Nitrile | Deep Teal | 55 Shore A | -30 to 150 °C<br>-22 to 302 °F | 1.25 g/cm³ | **Yes** | **Yes** | No | No |

## Sizes and performance

| Cup size | Height | Stroke | Internal volume | Holding force |
|---|---|---|---|---|
| **15 mm / 0.591 in** | 28.5 mm / 1.122 in | 30 mm / 1.181 in | 1.51 ml / 0.092 in³ | **3 N / 1 lbf** |
| **20 mm / 0.787 in** | 38.0 mm / 1.496 in | 30 mm / 1.181 in | 3.58 ml / 0.218 in³ | **6 N / 1 lbf** |
| **25 mm / 0.984 in** | 47.5 mm / 1.87 in | 30 mm / 1.181 in | 6.99 ml / 0.427 in³ | **9 N / 2 lbf** |
| **30 mm / 1.181 in** | 57.0 mm / 2.244 in | 30 mm / 1.181 in | 12.09 ml / 0.738 in³ | **13 N / 3 lbf** |
| **40 mm / 1.575 in** | 76.0 mm / 2.992 in | 30 mm / 1.181 in | 28.65 ml / 1.748 in³ | **23 N / 5 lbf** |
| **50 mm / 1.969 in** | 95.0 mm / 3.74 in | 30 mm / 1.181 in | 55.96 ml / 3.415 in³ | **35 N / 8 lbf** |
| **60 mm / 2.362 in** | 114.0 mm / 4.488 in | 30 mm / 1.181 in | 96.7 ml / 5.901 in³ | **51 N / 11 lbf** |

**Recommended vacuum** −60 kPa (17.7 inHg, 59%) at safety factor 2. **Connections** Barbed stem for 4 mm ID tubing, Barbed stem for 6 mm ID tubing, Cup only, no fitting (for custom holders), G1/4 (BSPP) female, G1/4 (BSPP) male, G1/4 (BSPP) spring, G1/8 (BSPP) female, G1/8 (BSPP) male, G1/8 (BSPP) spring, G3/8 (BSPP) male, M5 (Metric) male, with NPT options on pipe sizes.
**Order code** AV-PLM-[size]-[compound]-[connection], for example AV-PLM-30-HNBR-G14. 168 configurations in total.